

PATENT SPECIFICATION

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(19)



(54) ELECTRICAL TERMINAL

(71) We, AMP INCORPORATED, a corporation organised and existing under the laws of the State of New Jersey, United States of America, of Eisenhower Boulevard, Harrisburg, Pennsylvania, U.S.A., do hereby declare the invention, for which we pray that a patent may be granted to us, and the method by which it is to be performed, to be particularly described in and by the following statement:—

This invention relates to an electrical terminal.

According to this invention an electrical terminal, stamped and formed in one piece from sheet metal, includes a wire connecting portion comprising a pair of parallel plane spaced plate members joined by a pair of parallel tie members extending perpendicularly of the plate members, each from a corner of one plate member to a corner of the other plate member, each plate member containing a slot open to the edge of the plate member between the tie members and aligned with the slot in the other plate member, into which slots an insulated electrical wire can be forced through the open ends thereof, such that the edges of the slots penetrate the insulation of the wire and establish electrical connection to the conductive core of the wire; and wing members extending perpendicularly from at least one of the plate members and each connected thereto along an individual edge of the plate member extending parallel to the axis of the slot in the plate member, each wing member extending towards the other plate member and having an inwardly turned free edge portion providing a shoulder facing away from the tie members and located intermediate the ends of the slots whereby an insulated wire forced into the slots can become located beneath the shoulders which thereby serve to hold the wire down in the slot.

Preferably each plate member carries a pair of wing members as set out above, whereby there are four wire hold-down shoulders.

Preferably the inwardly turned free edge

portions of the wing members taper outwardly towards the tie members thereby to provide a flared mouth between the opposed edges of the free edge portions of the wing members, to facilitate insertion of a wire between them.

An electrical terminal according to the invention will now be described by way of example with reference to the drawings, in which:—

Figure 1 is a side elevational view of part of the terminal;

Figure 2 is a plan view of the part of the terminal shown in Figure 1;

Figures 3, 4 and 5 are sections on the lines III—III, IV—IV, and V—V in Figure 1, respectively; and

Figure 6 is a perspective view of part of the terminal shown in Figure 1.

The drawings show only the wire connecting portion of a terminal according to the invention, since this portion can be used with any desired contact portion, for example a receptacle for mating with a tab or pin.

The wire connecting portion shown is stamped and formed, together with a contact portion, in one piece from sheet metal, and comprises a pair of parallel plane spaced plate members 1 joined by a pair of parallel tie members 2 extending perpendicularly of the plate members 1 each from a corner of one plate member 1 to a corner of the other plate member 1.

Each plate member 1 contains a slot 3 having a flared mouth 4 open to the edge of the plate member 1 between the tie members 2 and aligned with the slot 3 in the other plate member 1.

An insulated electrical wire (not shown) can, in known manner, be forced into the slots 3 through the mouths 4 thereof, transversely of its axis, such that the edges of the slots 3 penetrate the insulation of the wire and establish electrical connection to the conductive core thereof.

Each plate member 1 carries a pair of wing members 5 extending perpendicularly from the plate member 1 and each

connected thereto along an individual edge extending parallel to the axis of the slot 3 therein. Each wing member 5 extends towards the other plate member 1, and has an inwardly turned free edge portion 6 providing a shoulder 7 (Figure 4) facing away from the tie members 2, and located in a plane intermediate the ends of the slots 3. The edge portions 6 taper outwardly towards the tie members 2 thereby to provide a flared mouth 8 to facilitate insertion of a wire between them.

Thus, as an insulated wire is forced into the slots 3 as described above, thereby electrically to connect the terminal to the wire, the wire is also forced between the edge portions 6 of the wing members 5, and finally comes to rest beneath the shoulders 7 which thus serve to hold the wire down in the slots as required.

It will be appreciated from the above described manner of use of the terminal, that the distance between opposed edge portions 6 of the wing members 5, and the resilience of the wing members 5 about their junctions with the plate members 1, are such that an insulated portion of an inserted wire can be forced between the edge portions 6 without substantial damage until the insulated portion of the wire is located beneath the shoulders 7 with the shoulders 7 engaging the insulation of the wire to restrain movement of the wire back out of the slots 3.

The terminal portion shown in the drawings includes a third plate member 9 which is joined to one of the plate member 1 by a base portion 10 extending from the edge of the plate member 1 adjacent the closed end of the slot 3 therein.

Edge portions 11 of the plate member 9 are bent to extend perpendicularly away from the plate members 1 to act as stiffening flanges, and the plate member 9 contains a slot 12 open in the same direction as the slots 3, and sized to receive and grip the insulation of a wire connected to the terminal to provide strain relief for forces applied axially to the wire, in known manner.

The above described wire connection portion can be connected to a contact portion (not shown) by way of a further base portion 13 which extends from the edge of the plate member 1 remote from the third plate member 9, which edge is adjacent the closed end of the slot 3 in the plate member 1.

WHAT WE CLAIM IS:—

1. An electrical terminal, stamped and

formed in one piece from sheet metal, including a wire connecting portion comprising a pair of parallel plane spaced plate members joined by a pair of parallel tie members extending perpendicularly of the plate members, each from a corner of one plate member to a corner of the other plate member, each plate member containing a slot open to the edge of the plate member between the tie members and aligned with the slot in the other plate member, into which slots an insulated electrical wire can be forced through the open ends thereof, such that the edges of the slots penetrate the insulation of the wire and establish electrical connection to the conductive core of the wire; and wing members extending perpendicularly from at least one of the plate members and each connected thereto along an individual edge of the plate member extending parallel to the axis of the slot in the plate member, each wing member extending towards the other plate member and having an inwardly turned free edge portion providing a shoulder facing away from the tie members and located intermediate the ends of the slots whereby an insulated wire forced into the slots can become located beneath the shoulders which thereby serve to hold the wire down in the slots.

2. A terminal as claimed in Claim 1, in which each plate member carries a pair of said wing members.

3. A terminal as claimed in Claim 1 or Claim 2, in which the inwardly turned free edge portions of the wing members taper outwardly towards the tie members thereby to provide a flared mouth between the opposed edges of the free edge portions of the wing members, to facilitate insertion of a wire between them.

4. A terminal as claimed in any preceding claim, including a third plate member which is joined to one of said pair of plate members by a base portion extending from the edge of the plate member adjacent the closed end of the slot therein, edge portions of the third plate member being bent to extend perpendicularly away from said pair of plate members to act as stiffening flanges, and the third plate member containing a slot open in the same direction as the slots in said pair of plate members and sized to receive and grip the insulation of a wire connected to the terminal to provide strain relief for forces applied axially to the wire.

5. An electrical terminal substantially as hereinbefore described with reference to, and as shown in, the drawings.

For the Applicants.
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